IN THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) A method for printing a document in a data communications system using a Bluetooth protocol stack including a wireless printer protocol and a Logical Link Control and Adaptation Protocol (L2CAP), the method comprising the steps of:

establishing a bi-directional wireless asynchronous connection-less (ACL) connection between a processing unit including a printer client and a printer including a printer server, wherein establishing the ACL connection comprises the wireless printer protocol calling the L2CAP requesting the ACL connection and the L2CAP creating the ACL connection;

establishing a connection for one or more print jobs between the printer client and the printer server;

negotiating configuration parameters between the printer client and the printer server;

sending keep alive messages repeatedly from the printer client to the printer server and from the printer server to the printer client, wherein at least some of the keep alive messages are sent periodically after negotiation of the configuration parameters, wherein the connection between the printer client and the printer server is closed when at least one of: (i) the printer client fails to receive one or more of the keep alive messages from the printer server, (ii) the printer client fails to communicate one or more of the keep alive messages to the printer server, (iii) the printer server fails to receive one or more of the keep alive messages from the printer

client, and (iv) the printer server fails to communicate one or more of the keep alive messages from the printer client;

starting a print job;

sending print data from the processing unit to the printer;

stopping the print job; and

closing the ACL connection between the processing unit and the printer.

2. (Previously Presented) The method according to claim 1, further comprising the step of:

selecting the printer from a number of available printers before establishing the ACL connection.

3. (Previously Presented) The method according to claim 2, wherein the step of selecting the printer comprises using a Device Discovery Protocol.

4. (Previously Presented) The method according to claim 1, further comprising the step of:

obtaining an address of the printer before establishing the ACL connection.

5. (Previously Presented) The method according to claim 4, wherein the step of obtaining the address of the printer comprises using a Device Discovery Protocol.

6. (Previously Presented) The method according to claim 5, wherein establishing the connection for the one or more print jobs comprises sending a connection request message from the printer client to the printer server.

7. (Previously Presented) The method according to claim 6, wherein establishing the connection for the one or more print jobs further comprises responding to the connection request message in a response message sent from the printer server to the printer client regardless of whether the connection is successful.

8. (Previously Presented) The method according to claim 1, wherein the step of negotiating the configuration parameters between the printer client and the printer server comprises the printer client requesting configuration in a configuration request message sent to the printer server, the configuration request message including no new options if the printer client uses default values.

9. (Previously Presented) The method according to claim 1, wherein the step of negotiating the configuration parameters between the printer client and the printer server comprises the printer client requesting configuration in a configuration request message sent to the printer server, the configuration request message including a suggestion of configuration options.

10. (Previously Presented) The method according to claim 9, wherein said configuration request message is responded to by the printer server in a response message indicating whether the configuration options in the configuration request message are supported by the printer server.

11. (Previously Presented) The method according to claim 10, further comprising the step of:

sending a further configuration request message from the printer client to the printer server if the configuration options are not supported by the printer server, the further configuration request message including a suggestion of further configuration options which differs from the earlier suggestion.

12. (Previously Presented) The method according to claim 1, further comprising the step of:

sending a set attribute request message from the printer client to the printer server after negotiating the configuration parameters, the set attribute request message comprising a coding table concerning a negotiated coding type.

13. (Previously Presented) The method according to claim 12, further comprising the step of:

loading the coding table at the printer server.

14. (Previously Presented) The method according to claim 13, further comprising the step of:

sending a response to the set attribute request message from the printer server to the printer client regardless of whether the loading was successful.

15. (Previously Presented) The method according to claim 1, wherein a keep alive timer is implemented in the printer client and in the printer server, and the method further comprises the step of:

starting the keep alive timer at one of the printer server and the printer client each time a valid message is received from the other of the printer server and the printer client.

16. (Previously Presented) The method according to claim 15, further comprising the step of:

closing the connection between the printer client and the printer server when the keep alive timer expires.

17. (Previously Presented) The method according to claim 1, wherein the step of starting the print job comprises the printer client requesting that the printer server start the print job in a request message.

18. (Previously Presented) The method according to claim 17, wherein said request message is received and confirmed by the printer server and a confirmation is sent in a response message to the printer client.

19. (Previously Presented) The method according to claim 1, wherein the step of sending the print data from the processing unit to the printer comprises sending the print data in a number of print data request messages.

20. (Previously Presented) The method according to claim 19, further comprising the step of:

sending an acknowledgement message from the printer server to the printer client after the printer server has received a predetermined number of the print data request messages.

21. (Previously Presented) The method according to claim 1, further comprising the step of:

indicating that the printer is out of paper in a message sent from the printer server to the printer client.

22. (Previously Presented) The method according to claim 21, further comprising the step of:

indicating that the printer is refilled with paper in another message sent from the printer server to the printer client.

23. (Previously Presented) The method according to claim 22, further comprising the step of:

continuing the printing by continuing to send print data request messages to the printer server starting with the print data request message subsequent to a last received print data acknowledgement message.

24. (Previously Presented) The method according to claim 1, further comprising the step of:

stopping a keep alive timer when the ACL connection is disconnected during printing.

25. (Previously Presented) The method according to claim 24, further comprising the step of:

requesting a reconnection of a session defined by a session identifier in a message sent from the printer client to the printer server.

26. (Previously Presented) The method according to claim 25, further comprising the step of:

sending a response according to whether the reconnection is granted in a response message from the printer server to the printer client.

27. (Previously Presented) The method according to claim 26, further comprising the step of:

continuing the printing by continuing to send print data request messages after the printer client receives a granted reconnection response starting with the print data request message subsequent to a last received print data acknowledgement message.

28. (Previously Presented) The method according to claim 1, wherein the step of stopping the print job comprises sending a request to stop the print job in a message from the printer client to the printer server.

29. (Previously Presented) The method according to claim 28, further comprising the step of:

sending a response message comprising a confirmation from the printer server to the printer client after the printer server receives the request to stop the print job.

30. (Previously Presented) The method according to claim 1, wherein the step of closing the ACL connection between the processing unit and the printer comprises the printer client requesting a disconnection of a session defined by a session identity in a message sent to the printer server.

31. (Previously Presented) The method according to claim 30, wherein the printer server indicates whether the disconnection was granted in a response message sent from the printer server to the printer client.

32. (Previously Presented) The method according to claim 1, further comprising the step of:

stopping the sending of the keep alive messages after the ACL connection is closed.

33. (Previously Presented) A computer program product loadable into an internal memory of a digital computer within at least one of a processing unit and a printer in a communication system, the computer program product comprising software code portions for performing the steps of claim 1 when said product is executed.

34. (Previously Presented) A computer program product stored on a computer usable medium, the computer program product comprising readable program code for causing a computer within at least one of a processing unit and a printer in a communication system to control an execution of the steps of claim 1.

35. (Currently Amended) An entity in a processing unit, the entity comprising:

a Bluetooth protocol stack comprising a Logical Link Control and Adaptation Protocol (L2CAP) and a wireless printer protocol, the wireless printer protocol comprising a printer client capable of communicating with a printer server in a printer;

an establishing device arranged for establishing a bi-directional wireless asynchronous connection-less (ACL) connection to the printer by calling the L2CAP requesting the connection;

an establishing device arranged for establishing a connection for one or more print jobs between the printer client and the printer server;

a negotiating device arranged for negotiating configuration parameters with the printer server;

a sending device arranged for sending keep alive messages repeatedly to the printer server, wherein at least some of the keep alive messages are sent periodically after negotiation of the configuration parameters, wherein the connection between the printer client and the printer server is closed when at least one of: (i) the sending device fails to communicate one or more of the keep alive messages to the printer server, and (ii) the printer client fails to receive one or more keep alive messages from the printer server;

a starting device arranged for starting a print job;

a sending device arranged for sending print data to the printer server;

a stopping device arranged for stopping the print job; and

a closing device arranged for closing the ACL connection between the processing unit and the printer.

36. (Previously Presented) The entity according to claim 35, wherein the establishing device for establishing the connection for the one or more print jobs comprises a sending device arranged for sending a connection request message from the printer client to the printer server.

37. (Previously Presented) The entity according to claim 35, wherein the negotiating device uses default values when negotiating the configuration parameters and comprises a sending device arranged for sending a configuration request message to the printer server, the configuration request message including no new options.

38. (Previously Presented) The entity according to claim 35, wherein the negotiating device comprises a sending device arranged for sending a configuration request message to the printer server, the configuration request message including a suggestion of configuration options.

39. (Previously Presented) The entity according to claim 38, wherein the negotiating device further comprises a sending device arranged for sending a further configuration request message to the printer server, the further configuration request message including a further suggestion of configuration options which differs from the earlier suggestion.

40. (Currently Amended) The entity according to claim 35, wherein the entity further comprises a sending device arranged for sending a set attribute request message to the printer server after negotiating the configuration parameters, the set attribute request message comprising a coding table concerning a negotiated coding type.

41. (Previously Presented) The entity according to claim 35, wherein a keep alive timer is implemented in the printer client.

42. (Previously Presented) The entity according to claim 41, wherein the entity further comprises a starting device arranged for starting the keep alive timer each time a valid message is received from the printer.

43. (Previously Presented) The entity according to claim 42, wherein the entity further comprises a closing device arranged for closing the connection between the printer client and the printer server when the keep alive timer expires.

44. (Previously Presented) The entity according to claim 35, wherein the starting device comprises a sending device arranged for sending a request message to the printer server, the request message comprising a request to start the print job.

45. (Previously Presented) The entity according to claim 35, wherein the sending device for sending the print data to the printer server comprises a sending device arranged for sending a number of print data request messages to the printer server, the print data request messages comprising the print data.

46. (Previously Presented) The entity according to claim 45, wherein the entity further comprises a continuing device arranged for continuing the printing when the printing is interrupted by a refill of paper at the printer, the printing continued by continuing to send the print data request messages to the printer server starting with the print data request message subsequent to a last received print data acknowledgement message.

47. (Previously Presented) The entity according to claim 41, wherein the entity further comprises a stopping device arranged for stopping the keep alive timer when the ACL connection is disconnected during the printing.

48. (Previously Presented) The entity according to claim 35, wherein the entity further comprises a requesting device arranged for requesting a reconnection of a session defined by a session identifier in a message sent to the printer server after a break in the ACL connection.

49. (Previously Presented) The entity according to claim 48, wherein the entity further comprises a continuing device arranged for continuing the printing in response to a granted reconnection response message by continuing to send print data request messages to the printer server starting with the print data request message subsequent to a last received print data acknowledgement message.

50. (Previously Presented) The entity according to claim 35, wherein the stopping device comprises a sending device arranged for sending a message to the printer server, the message comprising a request to stop the print job.

51. (Previously Presented) The entity according to claim 35, wherein the closing device comprises a sending device arranged for sending a message to the printer server, the message comprising a request to disconnect a session identified by a session identity.

52. (Previously Presented) The entity according to claim 35, wherein the entity further comprises a stopping device arranged for stopping the sending of the keep alive messages after the closing of the connection between the printer client and the printer server.

53. (Currently Amended) A printer entity in a printer, the printer entity comprising:

a Bluetooth protocol stack comprising a Logical Link Control and Adaptation Protocol (L2CAP) and a wireless printer protocol, the wireless printer protocol comprising a printer server which communicates with a printer client in a processing unit;

a negotiating device arranged for negotiating configuration parameters with the printer client;

a sending device arranged for sending keep alive messages repeatedly to the printer client, wherein at least some of the keep alive messages are sent periodically after negotiation of the configuration parameters, wherein the connection between the printer client and the printer server is closed when at least one of: (i) the sending device fails to communicate one or more of the keep alive messages to the printer client, and (ii) the printer server fails to receive one or more keep alive messages from the printer client;

a starting device arranged for starting a print job;

a receiving device arranged for receiving print data from the printer client; and

a stopping device arranged for stopping the print job.

54. (Previously Presented) The printer entity according to claim 53, wherein the printer entity further comprises a responding device arranged for responding to a connection request ~~in~~ a response message sent to the printer client regardless of whether the connection is successful.

55. (Previously Presented) The printer entity according to claim 53, wherein the negotiating device comprises a responding device arranged for responding to a configuration request regardless of whether configuration options in the configuration request are supported by the printer server.

56. (Previously Presented) The printer entity according to claim 53, wherein the negotiating device comprises a loading device arranged for loading a coding table sent from the printer client.

57. (Previously Presented) The printer entity according claim 56, wherein the negotiating device further comprises a sending device arranged for sending a response to the printer client regardless of whether the loading was successful.

58. (Previously Presented) The printer entity according to claim 53, wherein a keep alive timer is implemented in the printer server.

59. (Previously Presented) The printer entity according to claim 58, wherein the printer entity further comprises a starting device arranged for starting the keep alive timer each time a valid message is received from the processing unit.

60. (Previously Presented) The printer entity according to claim 53, wherein the starting device comprises a confirming device arranged for confirming a start print job request message sent from the printer client.

61. (Previously Presented) The printer entity according to claim 53, wherein the receiving device comprises a sending device arranged for sending an acknowledgement message to the printer client after receiving a predetermined number of print data request messages.

62. (Previously Presented) The printer entity according to claim 53, wherein the printer entity further comprises an indicating device arranged for indicating, in a message sent to the printer client, that the printer is out of paper.

63. (Previously Presented) The printer entity according to claim 53, wherein the printer entity further comprises an indicating device arranged for indicating, in a message sent to the printer client, that the printer is refilled with paper.

64. (Previously Presented) The printer entity according to claim 53, wherein the printer entity further comprises a stopping device arranged for stopping a keep alive timer when an asynchronous connection-less (ACL) connection to the processing unit is disconnected during printing.

65. (Previously Presented) The printer entity according to claim 53, wherein the printer entity further comprises a sending device arranged for sending a response message to the printer client according to whether a reconnection request is granted.

66. (Previously Presented) The printer entity according to claim 53, wherein the stopping device comprises a sending device arranged for sending a response message comprising a confirmation after the printer server has received a request to stop the print job.

67. (Previously Presented) The printer entity according to claim 53, wherein the printer entity further comprises a sending device arranged for sending a response message to the printer client according to whether a disconnection request is granted.

68. (Previously Presented) The printer entity according to claim 53, wherein the printer entity further comprises a stopping device arranged for stopping the sending of the keep alive messages after the connection to the printer client is closed.

69. (Currently Amended) A communications system comprising:

a processing unit according to claim 35; and

a printer entity in a printer, the printer entity comprising:

a Bluetooth protocol stack comprising a Logical Link Control and Adaptation Protocol (L2CAP) and a wireless printer protocol, the wireless printer protocol comprising a printer server which communicates with a printer client in the processing unit;

a negotiating device arranged for negotiating configuration parameters with the printer client;

a sending device arranged for sending keep alive messages repeatedly to the printer client, wherein at least some of the keep alive messages are sent periodically after negotiation of the configuration parameters, wherein the connection between the printer client and the printer server is closed when at least one of: (i) the sending device fails to communicate one or more of the keep alive messages to the printer client, and (ii) the printer server fails to receive one or more keep alive messages from the printer client;

a starting device arranged for starting a print job;

a receiving device arranged for receiving print data from the printer client; and

a stopping device arranged for stopping the print job.

70. (New) The method of Claim 1, wherein at least some of the keep alive messages inform one of the printer server and the printer client that the other of the printer server and the printer client is hard loaded and is operating more slowly than normal.

71. (New) The method of Claim 1, wherein each keep alive message only results in one of the printer server and the printer client restarting a keep alive timer.